WE CLAIM AS OUR INVENTION:

1. A multi-chamber pacing comprising:

a pulse generator adapted to interact with a heart for delivering pacing pulses respectively to multiple chambers of the heart;

for each of the multiple chambers to which pacing pulses are delivered by said pulse generator, an evoked response detector including a sensor element adapted to interact with that chamber for sensing an IEGM signal, having a known signal morphology, therefrom and an integrator for integrating the IEGM signal within an evoked response detection time window to produce a time integral following delivery of a pacing pulse to that chamber, for detecting an evoked response of that chamber, said evoked response detection window containing a blanking interval resulting from delivery of a pacing pulse to another of said multiple chambers; and

each evoked response detector having an integral reconstructing unit for reconstructing said time integral of said IEGM signal in said blanking interval.

2. A pacing system as claimed in claim 1 wherein said integral reconstructing unit integrates a constant IEGM signal value obtained from said known signal morphology within said blanking interval.

3. A pacing system as claimed in claim 1 wherein said integral reconstructing unit integrates a constant IEGM signal value equal to an

average of a value of said IEGM signal at a beginning of said blanking interval and a value of said IEGM signal at an of said blanking interval.

4. A pacing system as claimed in claim 1 wherein each evoked response detector comprises a signal reconstructing unit for reconstructing said IEGM signal in said blanking interval, thereby producing a reconstructed IEGM signal, and wherein said interval reconstructing unit integrates said reconstructed IEGM signal within said blanking interval.

5. A pacing system as claimed in claim 4 wherein said signal reconstructing unit is operable to select one of a plurality of different algorithms for reconstructing said IEGM signal in said blanking interval dependent on said known signal morphology.

6. A pacing system as claimed in claim 4 wherein said signal reconstructing unit reconstructs said IEGM signal within said blanking interval by determining an instantaneous slope of said IEGM signal at a beginning of said blanking interval and linearly extrapolating said instantaneous slope in said blanking interval.

7. A pacing system as claimed in claim 4 wherein said IEGM signal has a minimum within said blanking interval, and wherein said signal reconstructing unit reconstructs said IEGM signal within said blanking interval by identifying an instantaneous slope of said IEGM signal at a beginning of said blanking interval and an instantaneous slope of said IEGM signal at an

end of said blanking interval, and by forwardly linearly extrapolating said instantaneous slope of said IEGM signal at said beginning of said blanking interval and by rearwardly extrapolating said instantaneous slope of said IEGM signal from said end of said blanking interval, to an intersection point of the respective extrapolations.

8. A pacing system as claimed in claim 4 wherein said signal reconstructing unit reconstructs said IEGM signal in said blanking interval using a plurality of signal values of said IEGM signal preceeding said blanking interval and succeeding said blanking interval according to a polynomial of a predetermined degree,.

9. A pacing system as claimed in claim 4 wherein said integral reconstructing unit comprises a filter for filtering said IEGM signal in a filtration time interval of a predetermined length containing said blanking interval.

10. A pacing system as claimed in claim 9 wherein said filter is an FIR filter having filter coefficients equal to zero within said blanking interval.

11. A pacing system as claimed in claim 1 comprising a memory, accessible by each evoked response detector, for storing a complete IEGM signal obtained from the heart prior to said evoked response detection time interval and without any blanking interval and wherein said integral reconstructing unit integrates the stored IEGM signal within said blanking interval.

12. A pacing system as claimed in claim 1 comprising a case containing said pulse generator and said evoked response detector and, for each of said multiple chambers, an implantable lead adapted to interact with that chamber having a tip electrode and a ring electrode and being connected to said pulse generator, and wherein said sensing element senses said IEGM signal between said tip electrode and said case and between said ring electrode and said case, respectively, and comprising a memory for storing said IEGM signals, and wherein said integral reconstructing unit integrates the IEGM signal sensed between said tip electrode and said case using a portion of the stored IEGM signal sensed between the ring electrode and the case corresponding to said blanking interval, within said blanking interval.